ABSTRACT OF THE DISCLOSURE

This invention relates to a torque-transmitting ball for constant velocity joints. The ball is an assembly with a plurality of sub-rollers. This multi-roller ball assembly comprises a center roller, two half-spherical rollers, a roller shaft and a sliding pin. The roller shaft serves as a common shaft for a plurality of sub-rollers (the center roller and the half-spherical rollers), allowing them to rotate independently around it. When a constant velocity joint is under a torque load, one half-spherical roller contacts against the outer race, another half-spherical roller contacts against the inner race, and finally the center roller or the sliding pin contacts against the cage window. The both ends of the sliding pin are constrained within the small slots machined on either side of the cage web along the center plane of the cage. Thus, the sliding pin maintains the spin-axis orientation of the multi-roller ball assembly with respect to the cage window. The multi-roller ball reduces the friction loss and wear of constant velocity joints by providing independent rolling elements to the outer race groove, the inner race groove, and the cage window.